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What the differences in conflict between online and face-to-face work groups mean for hybrid groups: A state-of-the-art review

Jessica Kahlow
University of Wisconsin-Milwaukee
jkahlow@uwm.edu

Hanna Klecka
University of Wisconsin-Milwaukee
hcklecka@gmail.com

Erin Ruppel
University of Wisconsin-Milwaukee
ruppele@uwm.edu

Abstract

Conflict has been a topic widely studied in communication and management studies literature. How groups handle conflict can affect group performance, satisfaction, and commitment (Martínez-Moreno, González-Navarro, Zornoza, & Ripoll, 2009; Pazos, 2012; Staples & Webster, 2007; Workman, 2007). Much of this literature focuses on online, task-oriented work groups, and how these groups differ from face-to-face (F2F) groups. However, hybrid groups (i.e., those that work both F2F and online) are increasingly common. To better understand conflict in hybrid groups, we review 68 articles regarding online, hybrid, and F2F groups that highlight the differences between F2F and online groups and consider what these differences mean for hybrid groups. In doing so, we identify several emergent themes related to how conflict is managed in online and hybrid groups. The literature suggests that there are many benefits to online and hybrid groups, such as the ability to assemble more diverse teams and work asynchronously, but that conflict is also more common in online than F2F groups. Strong norms and leadership behaviors that encourage trust and cohesion appear to reduce conflict and its effects on group performance and decision making, especially in online groups. These findings suggest that in hybrid groups, F2F meetings might be used to quickly establish group norms, trust, and cohesion, which can then improve online group interactions. However, more research is needed to understand how conflict occurs and is managed in hybrid groups. Future communication research should focus on examining conflict management in hybrid groups using computer-mediated communication perspectives.

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Highlights

- State of the literature at November 2019.
- Most groups use a combination of face-to-face and online communication, making them hybrid.
- Synthesizes 68 articles on conflict in face-to-face, hybrid, and online task groups and discusses what this means.
- Themes related to conflict in online groups include conflict management styles, decision-making, cultural differences, and trust.
- Group performance as an outcome variable persists across our themes, illustrating the importance of understanding conflict in hybrid groups.
- Future research should examine conflict in hybrid groups using computer-mediated communication perspectives.

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Introduction

As companies continue to expand geographically and as telecommuting becomes increasingly popular, work groups are increasing their use of computer-mediated communication (CMC) to work together online (Meluch & Walter, 2012; Mortensen & Hinds, 2001). Group dynamics surrounding conflict tend to differ between groups that work face-to-face (F2F) and those that work online (Hinds & Mortensen, 2005; Krawczyk-Brylka, 2017). Although much of the literature on conflict in work groups considers F2F and online groups to be mutually exclusive, work groups often interact through both F2F and online channels. These hybrid groups experience and manage conflict in ways that are distinct from exclusively F2F or online groups (Krawczyk-Brylka, 2017). However, little is known about how conflict is managed in hybrid groups or how our understanding of hybrid groups might be informed by research regarding entirely F2F or online groups. The purpose of this review is to highlight the differences in how conflict is managed in F2F and online groups to help understand how conflict occurs in hybrid groups.

Research on conflict in online groups reflects an intersection of communication scholarship in small groups, mediated, and organizational communication. Hybrid groups using multiple media to communicate are different from exclusively F2F or online groups because the level of virtualness in hybrid groups affects how they manage conflict (Mortensen & Hinds, 2001). Staples and Webster (2007) note several possible reasons for the differences between traditional, distributed, and hybrid groups. One reason is that hybrid groups may develop in-groups and out-groups if some members are co-located while other members are distributed. In this sense, co-located members might depend more on one another than they depend on their distributed counterparts. Thus, the in-group and out-group distinction creates an "us versus them mentality" (Staples & Webster, 2007, p. 68). For example, distributed members might express resentment toward co-located members; co-located group members may place blame on distributed members, and they may establish greater trust, identity, and communication compared to distributed members. In terms of national diversity, safe virtual communication climates mitigate conflict by bridging in-groups and out-groups (Gibson & Gibbs, 2006).

Group scholarship tends to consider F2F and online mutually exclusive, but doing so leaves out groups that interact both online and F2F. For example, in a work group, group members might begin a discussion in a F2F meeting and continue the discussion later through email or texting. Further, CMC changes the dynamics of conflict because asynchronous online groups lack the interpersonal components that are present in F2F groups, such as nonverbal communication and synchronous feedback (Hinds & Mortensen, 2005). Much of the existing literature pertaining to conflict in online groups comparatively analyzes groups in F2F versus CMC contexts (Ayoko, Konrad, & Boyle, 2012; Chiravuri, Nazareth, & Ramamurthy, 2011; Meluch & Walter, 2012; Zornoza, Ripoll, & Peiró, 2002), specifying that research on the latter has been less prevalent due to more recent widespread reliance on CMC for collaboration in organizations (Branson, Clausen, & Sung, 2008; Lira, Ripoll, Peiró, & González, 2007).

We begin this review with a definition of online groups. We then conceptualize our literature search. Next, we synthesize the existing literature in terms of the differences between online and F2F groups, and in this process, we identify four major emerging themes prevalent in online and F2F group conflict literature. Then, we address the implications of the differences between how conflict is managed in online versus F2F groups for each theme. Finally, we conclude with a few future directions for communication research.

Conceptualizing Online and Hybrid Groups

Online, virtual, mediated, CMC, hybrid, distributed, geographically separated, co-located, traditional, F2F, groups, and teams are often used interchangeably and inconsistently. For the purposes of this review, teams are groups that have a specific goal with clear roles and responsibilities (Katzenbach & Smith, 1993); in other words, all teams are groups, but not all groups are teams. Although many task-oriented work groups would also qualify as teams, we included studies that used the term group or team in our review to capture the full range of research in this area. Given that only some of the research we review deals with teams in the strict sense of the term, we refer to groups throughout the manuscript. Traditional, F2F, and co-located groups all refer to groups that meet in person at the same location. Distributed and geographically separated groups both refer to long-distance groups that use some form of mediated communication to work together. However, co-located

teams, which are F2F virtualness varies within and between groups.

The term virtualness is defined as the amount of CMC used by a group and can be thought of as a continuum spanning from F2F groups to completely online groups (Gilson, Maynard, Young, Vartiainen, & Hakonen, 2015; Martins, Gilson, & Maynard, 2004; Stark et al., 2014). Virtualness has also been defined as the distance between team members (Foster, Abbey, Callow, Zu, & Wilbon, 2015). In addition to a group's degree of virtualness, groups are also defined based on geographical location (Staples & Webster, 2007). These two components of groups – virtualness and distance – are common to all groups; in other words, all groups have varying degrees of virtualness and varying geographical distances. Because of this variation, we propose that scholars must clearly explicate the groups under analysis according to these two components.

Work groups are able and often expected to communicate via CMC and F2F, so further research that focuses on hybrid teams is essential for contributing information that addresses the complexities associated with modern group work and CMC theory. The findings more widely available in current research treats F2F and CMC groups as mutually exclusive entities, which might not reflect the group work that actually exists in society. While there are numerous studies pertaining to group conflict that focus entirely on F2F or CMC groups or compare F2F with CMC groups, there are few that consider groups that fall between these categories. Staples and Webster (2007) analyzed traditional (F2F), distributed (CMC), and hybrid groups that harnessed both forms of communication. They determined that to be effective, members of distributed and online groups needed to use open lines of communication, employ effective time management skills, and be more responsive in comparison to F2F teams.

Further, Stark et al. (2014) similarly addressed virtualness (or how much CMC is used in a group) of work groups as a continuum and concluded that when teams have the ability to be co-located and online, the type of conflict (task, relational, or process) should determine the level of virtualness the group employs to be effective. For example, Stark et al. (2014) recommended that if there is high-process conflict and the group lacks cooperation, the conflict should be addressed in a F2F setting, rather than virtually. These comparisons between F2F and online groups find that conflict management strategies for F2F groups do not have the same effectiveness as CMC groups (Stark et al., 2014). Further research on hybrid groups is crucial to extend current understanding in the literature and we would like to encourage future scholars to include various relevant keywords to make sure their work does not get overlooked in future searches, along with clear definitions when using such terms. Finally, since many online and hybrid groups use CMC, future research could also focus on how common theories of CMC (such as social presence theory, media richness theory, social information processing theory, and hyperpersonal perspectives) apply within online and hybrid groups.

Conceptualizing Online Groups for Future Research.

We present two charts (Figure 1) to represent how past scholarship approaches this area of research, versus what we believe to reflect the modern reality of work groups. In Figure 1, the horizontal axis represents the continuum for the degree of virtualness of the interaction, and where the vertical axis represents the degree of physical distance between interacting members. Virtualness ranges from low (solely face-to-face interactions on the left) to high (people who have only met online on the right). Physical distance ranges from close (groups located within the same office, or groups with little geographical separation, on the bottom) to distant (distributed groups located in multiple locations, often across time zones, on the top). The chart on the left represents a conceptualization of how most of the literature has traditionally approached groups. The chart on the right represents how a small number of researchers have approached groups, which is what we believe to depict reality; most modern work groups should be treated as hybrid groups that dually exist on a spectrum of virtualness and physical distance.

In the literature, F2F and online groups are often considered mutually exclusive entities, even though many groups use multiple media to communicate. A few studies recognized the complexity behind groups using multiple media to communicate. Staples and Webster (2007) differentiated between traditional (F2F), distributed, and hybrid groups, and Stark et al. (2014) recognized the degree of virtualness a group has based on a continuum. However, research does not explicitly address how online or hybrid groups supplement F2F meetings with CMC, how groups use multiple media in different situations, or how to define the type of hybrid group. Hopefully, our proposed depiction that juxta-

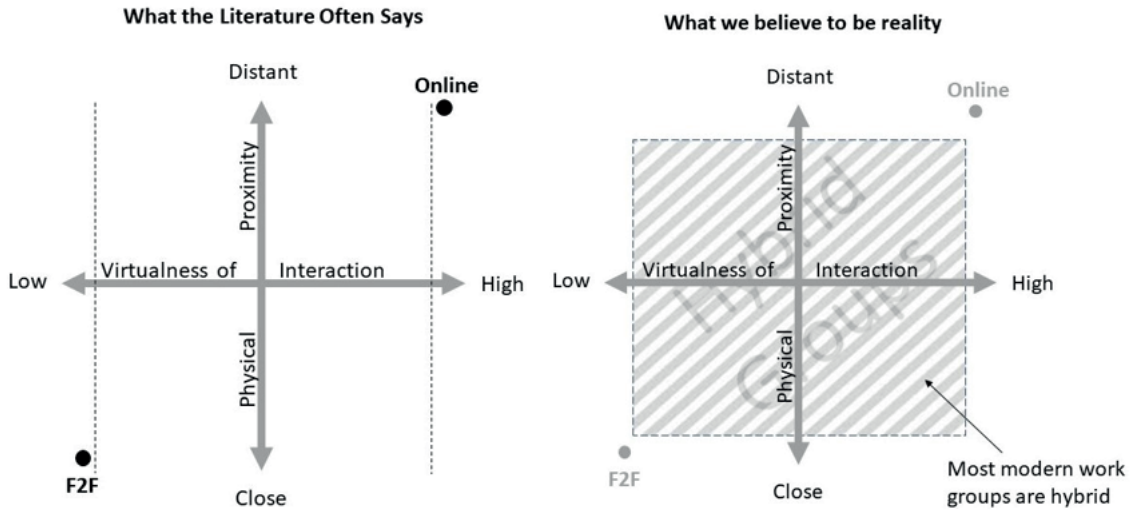

Figure 1. Past Research vs. Reality

poses past research with the reality of modern work groups helps future researchers clarify their definitions of groups and reveals that modern work groups most likely should be considered hybrid groups. Thus, this shared understanding can lead to future research that addresses how groups use mixed media in their group communication.

Why Conflict Differs in Different Group Types

Whether significant differences exist among the type of group (F2F, virtual, or hybrid with varying degrees of closeness) is contested both theoretically and empirically. Theoretically, Short and Christie (1976) argue that the reduced social presence in many media used to collaborate leads to differences in group interactions and outcomes; media with less presence would have worse interactions than media with more presence. However, more recent notions of social presence theory and other media capacity theories argue that these differences are not significant. For instance, Walther and Burgoon (1992) found that CMC group members expressed positive feelings about one another in a way that mirrored F2F groups. Likewise, Hollingshead and Contractor (2002) find no significant differences in interpersonal behaviors in terms of communication and group performance between F2F and CMC groups, especially in longitudinal observations. Further, Montoya, Massey, Hung, and Crisp (2009) suggest that the general pervasiveness of media among members of co-located and distributed groups is so high that members' interactions and behaviors with one another via CMC are not necessarily different.

The geographical distance between group members also influences group members' experiences. In a mixed-method comparison of F2F, hybrid, and distributed groups, Staples and Webster (2007) found that the relationships between teamwork, ability to cope, and performance were higher in hybrid and distributed groups than in F2F groups. They explain this difference as being an outcome of geographical distance more so than CMC in the sense that distributed group members have fewer opportunities to gather informal feedback compared to their co-located counterparts (Staples & Webster, 2007). Thus, they argue that it is more important for virtual and hybrid group members to know who to go to in the organization to get a prompt response than it is for F2F group members, since they have more opportunities to interact with members of the organization.

Virtuality also influences group members' experiences in online, hybrid, and F2F groups. Workman (2007) examined how virtualness impacts group performance and found that hybrid groups perceived less conflict and had better performance than F2F and virtual groups. Ocker and Morand (2002) used an experiment to examine hybrid and online groups and found that hybrid group members perceived more cohesiveness, a greater ability to manage conflict, and greater satisfaction compared to purely CMC groups. Similarly, Martínez-Moreno, González-Navarro, Zornoza, and Ripoll (2009) used an experiment to examine how conflict

in videoconference, CMC, and F2F groups influences group performance; they found that videoconference groups performed the best while CMC groups performed the worst.

Specifically, F2F group performance was enhanced by both task (i.e., the group's primary goal) and process (i.e., the logistics around how the group accomplishes that goal) conflict, but task conflict decreased performance in videoconference groups (Martínez-Moreno et al., 2009). Further, process and relationship (i.e., interpersonal) conflict was particularly detrimental to CMC groups, relative to F2F groups, at later stages of group development. Martinez-Moreno et al.'s findings regarding F2F groups are generally consistent with those of a later meta-analysis (de Wit, Greer, & Jehn, 2012), but their findings regarding videoconferencing and CMC groups suggest that associations between various conflict types and group performance likely differ in online and hybrid groups, perhaps because as virtuality increases, the opportunity for casual interactions with group members decreases, specifically in dispersed groups.

Literature Search

The literature search was conducted in November 2019 and included the following databases: Academic Search Complete, ComAbstracts, Communication & Mass Media Complete, JSTOR, ProQuest, Web of Science, and Social Science Open Access Repository. We also used Google Scholar to find additional articles and for citation chasing. These databases were chosen because they are well-known within the field of communication, and together, the articles within these databases provide a strong foundation for us to conduct our search. The following terms were used to search article titles, subjects, keywords, and abstracts: ("conflict" OR "conflict management" OR "conflict resolution" OR "conflict strategies" OR "conflict handling") AND ("online group" OR "online team" OR "hybrid group" OR "hybrid team" OR "distributed group" OR "distributed team" OR "mediated group" OR "mediated team" OR "virtual group" OR "virtual team"). An initial search revealed 132 articles related to conflict in online groups. Each author repeated the search, and these secondary searches did not yield any new articles. As such, we determined that an exhaustive search was conducted. To be included in the review, an article needed to be recoverable, written in English, and peer-reviewed. Both quantitative and qualitative studies were included. A complete list of the articles used in the review is available in the Appendix.

After sorting the articles to exclude articles that did not look at both online and F2F groups or hybrid groups as they relate to the central topic of conflict, a total of 68 articles from 49 different journals and books were included in this review. The primary reason a study was excluded was because it focused only on F2F groups, as opposed to online groups or comparisons between the two. The search revealed three literature reviews that offered general assessment of literature on online or virtual groups and only briefly discussed the presence of conflict among them (Gibbs, Kim, & Boyraz, 2017a; Gibbs, Sivunen, & Boyraz, 2017b; Gilson et al., 2015). However, many sources included in Gilson et al. (2015) are now more than a decade old and seem to be limited to management-related sources. Further, Gibbs et al. (2017a) and Gibbs et al. (2017b) focus on virtual teams in general and only briefly discuss the topic of conflict within subsections of each review. To determine the themes for this study, we used Machi and McEvoy's (2016) recommendations for creating literature reviews. In the next section, we synthesize the literature surrounding online groups by theme: conflict management styles, decision making, cultural differences, and trust.

Synthesizing Hybrid Groups

Research on conflict in F2F group settings currently dominates the literature. Nevertheless, recent research on CMC demonstrates that productive task-oriented work is being completed using online groups. The themes regarding task-oriented conflict in online groups that have emerged in the research include (a) conflict management styles, (b) decision-making, (c) cultural differences, and (d) trust and emotion management. Next, we offer an in-depth review of each theme to provide a clearer understanding of what is known about group conflict in online contexts, as well as determining areas in need of additional research and exploration within each theme. Finally, we conclude with general areas for future research and our overall conclusions based on the literature. A summary table of findings of what is known and areas for future research about each theme is available in Table 1.

Conflict Management Styles

A dominant theme in existing research is the identification

that conflict among online groups can be complex. Scholars consistently argue that conflict theory, which has been traditionally applied to teams in F2F settings, is not necessarily applicable to teams using CMC, often due to factors associated with online groups such as reduced social presence, lean media, and varied communication norms (Montoya-Weiss, Massey, & Song, 2001). Consequently, researchers offer insights into how members can resolve and mitigate conflict (Hinds & Bailey, 2003; Shin, 2005). Thomas's (1992) identifies five conflict management styles with varying degrees of cooperativeness and assertiveness: competing (uncooperative/assertive), avoiding (uncooperative/unassertive), collaborating (cooperative/assertive), accommodating (cooperative/unassertive), and compromising (somewhat cooperative/somewhat assertive). For the purposes of this review, we consider uncooperative strategies (competing and avoiding) negative conflict management strategies and cooperative strategies (collaborating and accommodating) positive conflict management strategies.

Conflict management strategies.

Other scholars align their online group research with traditional conflict management styles (see Thomas, 1992). Zornoza et al. (2002) discovered that the likelihood that a team employs negative conflict management strategies (avoiding, obliging, dominating) is significantly higher in online groups. Yu and Kuo (2012) performed a content analysis of virtual group discussions in an online class setting. They found that conflict is an inevitable group process and provides other group members the opportunity to adjust their values and preferences accordingly. They found that when virtual groups used withdrawal strategies, they would miss out on opportunities to talk about problems in the group (Yu & Kuo, 2012).

Additionally, Lee, Panteli, Bülow, and Hsu (2018) conducted a field study where they used adaptation theory, and they found that international groups used email to prevent conflict. They identified interaction avoidance, disempowering, blame-protection, and image-sheltering as the primary conflict strategies used to maintain organizational relationships in conflict situations occurring via email. Relatedly, Paul, Samarah, Seetharaman, and Mykytyn (2004) found that the collaboration conflict management style was associated with positive group performance among virtual groups.

Correia (2008) investigated the conflict management strategies used in an information and communication technology (ICT) rich graduate student classroom and found that all three groups experienced conflict, and that conflict changes over time. Specifically, ICTs promoted conflict management by simply offering group members a way to communicate (Correia, 2008). Olaniran (2010) examined conflict management patterns in email communication using an experimental design and found that the type of task influences the group's conflict management styles. Specifically, it is best to confront group members if there is intellective or cognitive task conflict. Thus, it is important to negotiate conflict strategies based on the kind of task and technology used (Olaniran, 2010). Martínez-Moreno, Zornoza, Orengo, and Thompson (2015) longitudinally examined the differences in conflict management styles in trained and untrained synchronous CMC groups using an experimental design and content analysis. They found that self-guided conflict management training is useful for virtual groups because trained groups used positive conflict management strategies (e.g., open communication and rotating responsibilities) more often than negative conflict management strategies (e.g., avoiding) over time. Untrained groups tended to use negative conflict strategies more often over time (Martínez-Moreno et al., 2015).

Online groups also lack many nonverbal cues necessary to interpret meaning and intent. Hinds and Bailey (2003) found that using a collaborative approach to managing conflict improves performance; however, collaborative norms can be difficult to establish among online teams due to the lack of certain antecedents, including mutual attraction, trust, cohesion, and interaction opportunities, which are negatively influenced by distance and technology. Furthermore, the lack of trust is a consistent factor that impacts conflict management styles of online groups (Furumo, 2009). Trust among members is necessary for cooperation to take place (Baruch & Lin, 2012), and others have found a strong association between trust, collaborative conflict management, and teamwork satisfaction among online groups (Xiaojing Liu et al., 2008).

Further, online groups that lack trust could end up employing competitive or avoidance styles of conflict management, which can have negative effects on group performance. Some scholars focus on coopetition (the intersection of cooperation and competition) as it relates to job effectiveness, citing that because competition often inhibits the pooling of information, competitive conflict should be closely monitored, and cooperative tendencies should be encouraged

Table 1. *Summary of findings*

Theme	What we know	Areas for further research
Conflict Management Styles	– Conflict in online groups requires strategic approaches to conflict management (Hinds & Bailey, 2003; Shin, 2005). – Collaborative approaches improve group performance (Hinds & Bailey, 2003). – It is important to determine group norms early on (Ayoko et al., 2012; Pazos, 2012; Xiaojing Liu et al., 2008), and a lack of group norms lead to avoiding, competing, and compromising approaches (Thomas, 1992; Zornoza et al., 2002). – Leader behaviors moderate the relationship between reactions to conflict and group outcomes (Ayoko & Callan, 2010; Chen & Chang, 2005; Garrison et al., 2010)	– How can conflict facilitate constructive engagement among group members? – How effective are conflict management strategies across media (email, instant-messaging, etc.) – What is the relationship between conflict or conflict management and leadership styles? – How does conflict manifest in hybrid groups, which use both CMC and F2F to exchange information? – How do leaders of online groups manage conflict?
Decision Making	– F2F groups make better decisions than online groups, especially when a correct solution exists (O'Neill et al., 2016). – Anonymity in group decision making does not guarantee better decisions (Postmes & Lea, 2000). – Performance in online groups depends on social context and social norms (Postmes & Lea, 2000). – F2F groups make decisions about three times as fast as online (instant message) groups (O'Neill et al., 2016). – Type of conflict helps determine degree of virtualness that should be applied (Branson et al., 2008; Gilson et al., 2015; O'Neill et al., 2016; Postmes & Lea, 2000)	– Is the relationship between conflict and decision-making positive or negative? – Replicate prior studies that had mixed findings. – Possible area for a future meta-analysis.
Cultural Differences	– Positive outcomes associated with diverse online groups are often not realized due to conflict (Sessa, 1996; Shin, 2005). – Negative outcomes of cultural differences inhibit group members' perceptions of performance (Ferreira et al., 2012; Montoya-Weiss et al., 2001; Yilmaz & Peña, 2014). – Increased risk for miscommunication in diverse online groups (Ayoko et al., 2012; Horwitz et al., 2006; Montoya-Weiss et al., 2001). – Lack of a single organizational culture and physical environment contribute to conflict in diverse CMC groups due to miscommunication (Hinds & Mortensen, 2005; Horwitz et al., 2006; Montoya-Weiss et al., 2001). – Conflict management strategies created for F2F groups do not have the same effectiveness in CMC groups (Martínez-Moreno et al., 2012)	– How do we best manage conflict cross-culturally? – Do specific cultural groups have different signs of conflict in online groups? – How do diverse groups develop and maintain trust, and how does this vary across cultures? – What are strategies for alleviating miscommunication (rich vs. lean media)? – Replicate prior studies that had mixed findings

Trust and Emotion Management	– Trust is crucial to group performance in online groups and relationship building helps build trust in online groups (Garrison et al., 2010). – Trust mediates the influence communication has on performance in hybrid groups (Sarker et al., 2011). – Relationship between online group members becomes stronger as knowledge-based trust increases (Jarvenpaa et al., 2004; Kuo & Yu, 2009). – Groups function better when emotions are communicated (Ayoko et al., 2012).	– What is the relationship between trust and conflict management? – How to create high levels of trust initially and maintain it throughout the duration of the group's task? – What is the influence of emotion management on conflict management in online groups? – How and when should emotions be shared in groups?

(back to pg. 56, forward to pg. 63)

among members (Lin, Wang, Tsai, & Hsu, 2010).

At the same time, ICTs also provoked conflict when specific strategies for using ICTs were imposed, when group members had different perceptions of urgency for responding to group messages, and when group members were blunt with others in the group (Correia, 2008). Meyer, Bond-Barnard, Steyn, and Jordan (2016) use a cross-sectional survey to gauge practitioners' preferences for video conferencing and F2F meetings. They found that practitioners preferred F2F over CMC and that they perceived CMC groups to be less cohesive, have less trust, and have more communication breakdowns, but that they did not perceive CMC groups as having more conflict (Meyer et al., 2016).

Leadership styles.

Several studies focus on the influence of leadership styles on a team's task and social outcomes. Different leadership styles can have different effects on the degree and nature of conflict in work teams (Ayoko & Callan, 2010). Further, Ayoko and Callan (2010) argue that group leaders serve as a bridge that connects group members in meaningful ways, helping them reach team goals. They also found that leader behaviors that have stronger emotional management qualities were strongly associated with better task conflict management and group outcomes. While their study included 97 workgroups, it is unclear the extent to which the groups used CMC in their interactions. Given the groups were located in a geographically similar location, they could have met F2F or via CMC. Based on the literature, the connection between leadership and conflict management styles in online groups is unclear.

Chang and Lee (2013) examine how leadership style influences the type of conflict management among Taiwanese business students working on a group project. These are hybrid groups because students met in class and worked on their projects via an online platform. They found that collaborative approaches to conflict are most effective, and that transformational leadership is more effective for dealing with conflict. Similarly, Gilson et al. (2015) found that virtuality strengthens the relationship between inspirational leadership, commitment, and trust, but dampens the relationship between hierarchical leadership and performance.

Establish norms.

In online groups, it is important to establish norms early in the development of an online group. Communication norms among online groups can include the types of information shared over various media, codes of conduct for behaviors (such as responding to or initiating messages), and expectations associated with prioritizing message importance for collocated versus remote team members (Cramton & Orvis, 2003). Hinds and Bailey (2003) contend that if "conflict-handling norms" (p. 628) that improve group performance and future conflict interaction are not established early or maintained throughout the group's lifetime, less desirable styles of conflict management (i.e., competing, compromising, or avoiding) are more likely to manifest among members. Many scholars agree that this responsibility of early conflict management falls on the team's leader (Chen & Chang, 2005), and failure by the leader to do so early in team formation leads to poorer performance, regardless of individual members' skill sets (Garrison, Wakefield, Xu, & Kim,

2010; Wakefield, Leidner, & Garrison, 2008).

The idea that establishing early process norms and preemptive conflict management protocols can mediate conflict has been supported by many scholars (Pazos, 2012; Xiaojing Liu, Magjuka, & Seung-hee Lee, 2008). Ayoko et al. (2012) conducted a study with university students who were organized into online groups and went through several stages of group development to complete a project. Ayoko et al. proposed that due to the lack of F2F communication that often results in decreased emotional awareness between members, members of online groups need to be more direct in explaining their reason for disagreement, explicit in managing the conflict, and open to feedback. Staples and Webster (2007) further determined that maintaining open lines of communication, being responsive, and managing time carefully allowed teams to manage conflict effectively. Therefore, if groups develop good communication norms early, they set themselves up to be more successful later and have less conflict.

Decision Making

In addition to conflict management styles, several studies focus on decision-making capabilities in online groups. Many organizations, in an effort to alleviate time constraints and organizational pressures, strategically utilize online groups to enhance productivity and facilitate increased creativity, with the hope that the influence of heterogeneity on decision-making will lead to positive outcomes (Gilson et al., 2015). While heterogeneity itself is an important consideration, organizations must also decide whether and how to make decisions about group formation and, in some cases, how the group will make decisions. The concept of heterogeneity is discussed more in the following section on cultural differences.

Jehn (1997) found a positive relationship between cognitive conflict and decision-making quality in F2F groups (Lira et al., 2007); however, the research and theory applying Jehn's conclusion to CMC groups are not conclusive (Stark et al., 2014, p. 225). Lira et al. (2007) showed a negative relationship between task conflict and acceptance of the group's decision; however, other studies have shown that conflict can also increase satisfaction with the group's decision. While Stark et al. (2014) did not find a positive relationship between task conflict and decision-making quality, others have. For example, O'Neill, Hancock, Zivkov, and Larson, (2016) found that F2F groups are more effective than online groups in all decision-making behaviors, especially when the online team is told there is a correct solution. Therefore, existing research on conflict and decision-making quality have received mixed results and do not always examine the same variables (e.g., group outcomes, satisfaction, acceptance of group norms, decision quality), so it is unclear whether the relationship between conflict and decision making is positive or negative, which could in part be due to the type of conflict examined.

Conflict type.

Others have examined conflict throughout the group's lifecycle. "The higher the task and process conflict experienced early on, the higher the relationship conflict reported later;" however, this may only be under certain conditions (Martínez-Moreno, Zornoza, González-Navarro, & Thompson, 2012, pp. 164–165). Yet, this finding further emphasizes the importance of establishing good social norms early on. They also found that in text-based synchronous online groups, early task conflict did not significantly predict subsequent relationship conflict (Martínez-Moreno et al., 2012). This finding may indicate that not only do F2F and CMC groups handle conflict differently, but also that different kinds of CMC groups (such as collocated or distributed, or different modes of CMC) may handle conflict differently. While different types of CMC groups may handle conflict differently, it is generally better to have task conflict over other forms of conflict.

Group formation.

Research has compared decision-making processes in F2F and CMC groups, determining that F2F groups make decisions about three times as fast and consider more unique information than online groups, likely because instant-messaging as a means of communication is more time consuming (O'Neill, Hancock, Zivkov, Larson, & Law, 2016). Online groups form "in a way that makes good group decision making difficult. As a result, they are more concerned about issues other than making good decisions" (Branson et al., 2008, p. 68). Because of this, conflict can arise when groups are more concerned about other issues (e.g., who is in the group, who the leader will be, and what the task is). Therefore, it is important to understand how and when to use certain strategies (e.g., assigning groups, random groups, and allowing individuals to create their own groups) to form

groups to prevent unneeded group conflict.

In some cases, online task groups form naturally (e.g., a group of online students creating an online study group) and, other times, online groups may be assigned (e.g., by supervisor for a specific project). For example, online groups make suboptimal decisions when group members are more concerned about maintaining power than they are pooling their information and developing better models of the problem (Branson et al., 2008). Furthermore, anonymity in group decision making does not guarantee better decisions. Rather, performance in decision-making groups depends on the social context and relevant social norms, as well as on system characteristics, including anonymity (Postmes & Lea, 2000). These conclusions support the idea that the type of conflict helps determine how much CMC (or virtualness) a group should use.

Cultural Differences

As a theme, cultural differences consider both organizational culture and cultural diversity. Cultural diversity has been extensively studied in F2F groups, and while diversity often has many benefits, it can also reduce group functioning or performance by increasing conflict (for a review, see Mannix & Neale, 2005). These effects are likely to be amplified in online groups because cultural differences and miscommunication tend to increase conflict (Sessa, 1996; Shin, 2005). Much of the literature regarding the theme of cultural differences indicates that positive online group outcomes are often not realized due to conflict. Furthermore, in diverse online groups, there is an increased risk of miscommunication and misunderstandings. Due to the dispersive nature inherent in online groups, conflict often arises as a consequence of organizational culture and cultural diversity among group members despite that location variability can also be a benefit for online groups.

Intercultural group members might differ in their language, religion, holidays, time zones, norms, values, and dimensions (Paul & Ray, 2010). These differences can lead to conflict due to lack of F2F task and social interaction, lower levels of trust, different communication styles, and lack of overall process structure, which inhibit perceptions of team performance among group members (Ferreira, Lima, & da Costa, 2012; Montoya-Weiss et al., 2001; Yilmaz & Peña, 2014). For example, Yilmaz and Peña (2014) discovered that online team members have positive attitudes toward members of similar social identity or categories, which impact members' collaboration processes. It is also worth noting that online groups may not be as aware of these differences because they can, in some cases, be concealed online.

The topic of cultural differences among members was a focus of much of the literature, and consequently, the subthemes of organizational culture and cultural diversity emerged during our analysis and are discussed in greater detail in the following sections.

Organizational culture.

Organizations often harness online groups to accomplish complex tasks by assembling a wealth of varying perspectives (Chiravuri et al., 2011). Also, task conflict arising from diverse groups can have positive impacts on group performance (Sessa, 1996, p. 102). However, the current literature reveals that the positive outcomes associated with diverse online groups are often not realized (Shin, 2005).

Scholars also argue that differing organizational process structures and contexts create conflict. Montoya-Weiss et al. (2001) determined that inconsistent temporal coordination among globally dispersed group members often contributes to conflict, and Hinds and Mortensen (2005) explained that the lack of a shared context leads to misunderstandings. Horwitz et al. (2006) revealed that workers who collaborate at a single location develop a common culture and norms, which does not often manifest among online groups in different locations. These findings suggest that the lack of a single organizational culture—which is constructed by the physical environment, ad hoc personal interactions, and coordinated processes—contributes to increased conflict among CMC groups due to resulting miscommunication. F2F teams exist in an organizational culture that shares these characteristics, so conflict related to these antecedents is less likely to occur.

Cultural diversity.

There is some inconsistency in the literature pertaining to how to mediate the effect of culture so that unproductive conflict does not manifest. Some scholars suggest bridging the cultural divide by making use of video conferencing tools to allow for nonverbal cues (Ezz, 2015). However, other scholars advise that leaner media, such as email, allow for effective communication because communicants have time to analyze and construct an appropriate response (Grosse,

2002). Conflict in online groups is often perpetuated by delayed communication, differences in time zones (Montoya-Weiss et al., 2001), lack of F2F interaction, and language barriers (Ayoko et al., 2012). Nonverbal cues are valuable sources of information for communication that are often absent when using CMC. Yet, the lack of cues and asynchronistic nature also allow time to craft more thoughtful messages and manage identity. Further, the lack of cues also makes it difficult to interpret the communicative meaning. The resulting miscommunication is a barrier to successful online group work.

Further, Horwitz et al. (2006) emphasize that because of this increased risk of miscommunication among culturally heterogeneous groups, these groups need to meet F2F early in-group formation to establish trust. Research on heterogeneous groups also shows that the cultural diversity of an online group can negatively influence perceptions between group members, which can develop into reduced frequencies of constructive task conflict (Paul & Ray, 2010). Additionally, organizations should require diversity and sensitivity training among management and employees (Buengeler, Klonek, Lehmann-Willenbrock, Morency, & Poppe, 2017; Horwitz, Bravington, & Silvis, 2006). Ezz (2015) further explores this issue, determining that managers of online groups should not only become better-educated interculturally, but should seek to cultivate trust through regular leader-member exchange of information. The current literature also suggests that the intervention of a competent leader can mitigate the conflict in culturally heterogeneous online groups (Garrison et al., 2010; Wakefield et al., 2008). However, research does not yet fully explore the relationship between leadership and conflict.

Given the salience of literature regarding the individualism-collectivism dimension of intercultural communication, Paul et al. (2004) compared virtual teams in a laboratory study involving culturally heterogeneous and homogeneous groups. Their study focused on how group diversity affected on the collaborative conflict management style. They found that group diversity had a moderating influence on performance and collaborative conflict style, and that the collaborative style was positively associated with performance (Paul et al., 2004). Further, they discovered that collectivist-orientated groups were more collaborative in their conflict management style, whereas individualist-orientated groups were less collaborative. The authors further indicated that because the cultural orientations of team members may differ, the process of motivating members also differs, which means that managers must carefully consider the cultural composition of a group to achieve group and organizational goals (Paul et al., 2004).

Trust

Online groups have more needs than F2F groups for trust, leadership, communication, and technology (Ezz, 2015). Researchers have argued that trust and, by extension, team cohesion are some of the greatest challenges in online groups (Garrison et al., 2010; Malhorta, Majchrzak, & Rosen, 2007). Further, trust is crucial to online groups' performance (Garrison et al., 2010) and is essential for smooth operation and cooperation (Jarvenpaa, Knoll, & Leidner, 1998; Msanjila & Afsarmanesh, 2008). Since performance is a commonly studied topic in conflict and because performance is highly linked to trust, it is also important to understand how trust functions differently across group types. Trust needs to be established in online groups, which is difficult if the organizational group meets solely online and has never met in person to establish an interpersonal connection. Therefore, it is important for online groups to take steps to build trust between members. For example, getting to know one another on a personal level at the beginning of online (video) meetings could help recognize each individual as a person.

Other studies have looked at how trust develops in online groups. In online groups, trust-building exercises significantly influenced the effect of other group members' perceptions of their ability, integrity, and benevolence (Jarvenpaa, et al., 1998). Furthermore, overall group trust is most strongly predicted by group members' perceptions of other members' integrity in the early stages of the group (Jarvenpaa et al., 1998). Yu and Kuo (2012) placed conflict and the resulting trust at a later stage of group development; they found that overcoming group conflicts builds stronger bonds among group members, which provide more opportunities to interact with their group and communicate their individual needs (Yu & Kuo, 2012).

Additionally, trust develops quickly in the beginning of work-oriented online groups, and trust affects online groups differently in different situations (Jarvenpaa, Shaw, & Staples, 2004). Swift trust is based on group members' beliefs imported from their past experiences, and these beliefs are important in the initial development of work-oriented online groups; swift trust serves as a proxy for members to assess

others' reliability and competence in completing their work (Kuo & Yu, 2009). Therefore, online groups need to develop trust early on (Horwitz et al., 2006).

The relationship between online group members becomes stronger as group members learn more about one another (Kuo & Yu, 2009). As group members are assured of each group member's individual competencies, they become more trusting of those members. Furthermore, group members use their prior experiences in groups to assess the costs and outcomes associated with maintaining a relationship with the group. They also use their past experiences to assess other group members' competencies and predict how other group members will behave (Kuo & Yu, 2009). Therefore, having conversations about how the group will operate and the roles of each group member are important for gaining trust within the group.

Not all groups meet solely online; some groups meet partially online and partially F2F. In these mixed groups, the amount of time they spend online influences conflict and trust within the group. Bierly, Stark, and Kessler (2009) found that the more virtual the group, the more likely that the effect of relationship conflict on the group members' trust would be negative. Further, they found that as virtualness (or the amount of CMC interactions) a group has increased, relationship conflict had a more "deleterious effect" on the group because there were fewer opportunities for personal interaction among its members and fewer opportunities for them to engage in "conflict resolution activities" (Bierly et al., 2009, p. 560).

Trust and communication go hand-in-hand, even though they are two separate behavioral constructs (Sarker, Ajuja, Sarker, & Kirkeby, 2011, p. 284). Sarker et al. (2011) conclude that trust mediates the effect of communication on performance, meaning that a communicative individual will be more likely to be trusted and will, therefore, be a higher performer in the group. Furthermore, Germain (2011) argues that decreased trust among online group members reduces knowledge sharing among them, which negatively impacts their performance. This research suggests that online groups that also meet F2F might have less conflict.

Emotion management.

Related to trust, managing emotional reactions in online and F2F groups helps manage conflict. Research suggests that conflict and emotions are intertwined, and that conflict can be both an antecedent and a consequence of emotions (Ayoko et al., 2012; Bodtker & Jameson, 2001; Jehn, 1997). Ayoko and Callan (2010) researched the relationship between managing emotion and conflict, and they found that task and relationship conflict engender high levels of emotional response among group members, which can potentially lead to conflict (p. 223). Ayoko et al. (2012) studied the link between conflict and the emotional behaviors of online group members, and they found that when online groups communicate their emotions (either positive or negative), team members "develop a shared understanding of the task goals and the processes needed to accomplish the goals" (Ayoko et al., 2012, p. 167). Further, when group members shared their negative emotions, groups were better able to identify gaps in the team's knowledge and better clarify their goals and how they will achieve them. This conclusion supports Keltner and Haidt (1999)'s finding that emotional expression helps individuals respond to social events, including conflict.

The literature shows that in F2F groups, revealing emotions leads to conflict (Ayoko & Callan, 2010). However, in online groups, revealing emotions creates a shared understanding among group members (Ayoko et al., 2012). Thus, members of hybrid groups must carefully manage their emotions in a way that elicit positive outcomes of emotive disclosures. The literature would suggest that in hybrid groups, emotions should be conveyed in CMC interactions as opposed to F2F interactions so that the benefits of emotive expressions can be fully realized. The following section discusses implications and areas for future research for each theme. Table 1 provides a summary of our thematic findings.

Thematic Implications and Future Research

Our review focused primarily on task-oriented work groups, and future research may be able to extend this to other types of goal-oriented groups. Doing this will provide a better understanding about whether the same factors are present in different kinds of online groups. The current scholarship about conflict in task-oriented online groups reveals substantial differences compared to conflict in F2F groups, and we discuss the implications of these differences in the following sections.

Conflict Management Implications

Many strategies proposed by researchers are theoretical conclusions, rather than empirical findings. More evidence

is needed to generate conclusions that allow organizations to confidently build their groups and implement communication procedures so that effective conflict can take place and unproductive conflict can be avoided or carefully managed. For example, organizations could implement online conflict management training (Martínez-Moreno et al., 2015) and provide communication technologies that allow and encourage more informal interactions (Correia, 2008; Yu & Kuo, 2012). Moreover, organizations could enhance performance outcomes by promoting collaboration strategies (Paul et al., 2004) over withdrawal strategies (Yu & Kuo, 2012). Additionally, the existing literature seems to only imply a relationship between conflict or conflict management and leadership styles. A closer examination linking these two concepts would benefit the understanding of how leadership styles influence group conflict. Such understandings would provide organizations with information about how their leaders can best manage different types of online groups to avoid and manage conflict.

Leadership Implications

Related to this, a good deal of literature exists on conflict management and leadership, but more research is needed that focuses on leadership in online groups. For example, some early literature has examined how the technology and media that leaders choose influence a group's performance (Sivunen & Valo, 2006). Therefore, the leader's choice of media matters in how well it will work for a group, so leaders in charge of making these decisions should be trained to select media that will work best for the group. However, more research is needed to understand which media work best for certain group tasks. For example, it is likely the case that text-based media will not be ideal for brainstorming situations, but it could be the case that text-based media would be best for voting or decision-making situations. In the past, accessibility was one of the main factors in selecting a communication technology to use in an online group (Sivunen & Valo, 2006). It would be important to examine this now since more communication technologies are readily available to assist with group work and have become more widely used and accessible in recent years. Because of the increased number of accessible technologies and the affordances they offer, it is likely that factors other than accessibility (e.g., editability, permanence, immediacy, and synchronicity) factor into a leader's selection of communication technology in an online group. For example, the age of the group members or the type of task being completed may be more prevalent factors. In this sense, it could be the case different generations prefer different technological features.

Decision Making Implications

Studies on decision making tend to focus on different aspects of decision making and conflict such as decision quality, conflict type, group formation and have mixed findings. Further research is needed to clarify and understand the results. The studies focusing on the same topic areas generally receive mixed results about whether the relationship between conflict and decision-making is positive or negative. Future research should aim to replicate the existing studies to understand the role conflict has on decision making. Doing so would provide organizations with a clearer idea of how decisions are best made in online groups and of the various possible mediating or moderating factors related to decision making that may influence group outcomes.

Cultural Differences Implications

In this theme, we identified three additional areas for future research.

First, it is important to understand whether specific cultural groups have different signs of conflict in online groups. Many researchers recognize the impact cultural differences can have on conflict in CMC teams (Maznevski & Chudoba, 2000) but do not factor this variable into their studies, often controlling for cultural differences by focusing on homogeneous cultural groups. Further, studies often focus on one culture or compare practices between different cultures; more studies should observe conflict in cross-cultural teams. Mortenson and Hinds (2001) recognize the importance of comparing co-located, domestic distributed, and internationally distributed teams. Therefore, studies that replicate this method would build upon online group conflict literature. Additionally, besides the study conducted by Paul et al. (2004), few studies focus on cultural dimensions that impact communication (e.g., individualism or collectivism) as they correspond with conflict in online groups. A clear focus on communication could require scholars to initiate studies that are focused on specific cultural groups. Such findings could reveal indicative measures and strategies that organizations could employ to mitigate the influence of conflict on group

performance and productivity.

Second, research regarding strategies for alleviating miscommunication (through rich and lean media) has had mixed findings. Ezz (2015) advised that to allow for nonverbal cues, richer media should be used to avoid miscommunication that often leads to conflict. However, Grosse (2002) recommended that because leaner media gives individuals time to formulate an appropriate response, miscommunication is less likely. Because of this, future research should aim to replicate existing studies to determine which type of medium promotes effective intercultural communication and reduces the likelihood of conflict and misunderstanding.

Additionally, pending availability of quantitative data, future meta-analyses on the topic will be able to provide a clearer understanding of the moderating variables for alleviating miscommunication. Given that cultural miscommunication is a salient issue among online groups, future scholars should focus on research that directly studies avenues of conflict mitigation, perhaps using media richness theory as a model. For example, rather than suggesting organizations should make use of lean or rich media among online groups at the end of a study to alleviate tensions associated with cultural diversity, scholars could comparatively study the effectiveness of lean and rich media, perhaps on a continuum, among work groups. This comparison could be the central focus of the study so that research draws definitive conclusions, rather than theoretical propositions.

Related, the literature cites cultural misunderstandings as a consistent source of conflict (Ferreira et al., 2012; Paul & Ray, 2010); however, the findings and recommendations are inconsistent. Therefore, a third area for future research would be on how conflict can be best managed cross-culturally and to determine the factors that influence the differences in results and recommendations across studies. Related to cultural misunderstandings, the literature points to a few inconsistent findings specifically related to media richness theory.

Finally, more research is needed pertaining to how diverse online groups develop and maintain trust (given its importance among online group success), and how these processes vary across cultures. Current research does reveal that trust is a central factor that contributes to the success of online groups, often helping to prevent or mediate the occurrence of conflict. Given the importance of trust in online group conflict, it will next be discussed as a separate theme.

Trust Implications

While the literature on trust is quite extensive, little of it focuses on conflict management in online groups. Given trust's crucial role in group performance, future research should focus on the relationship between trust and conflict. Moreover, it should replicate existing studies in additional contexts. Another possible area to be addressed includes how organizations can create high levels of trust initially and maintain it throughout the duration of the group's task. Research like this would have tremendous practical implications for organizational groups who are looking for strategies to create and maintain effective online groups. Since research focusing on how emotion management reduces or manages conflict in online groups is limited, future research could explore how and when to share emotions in online groups. For example, because online group members may not know one another, they may not feel comfortable sharing their emotions. Such a finding would increase the importance of relationship building within online groups and help practitioners and organizations develop strategies for online team-building that can increase the effectiveness of the group.

Performance Outcomes

The findings of the review mirror prior findings about the influence of conflict on group performance (Martínez-Moreno et al., 2009; Staples & Webster, 2007) because group performance has been highlighted across each of our subthemes. In terms of conflict management styles, more collaborative approaches enhance group performance (Hinds & Bailey, 2003). For decision making, group performance depends on social context and established social norms (Postmes & Lea, 2000). Further, negative outcomes associated with cultural differences (e.g., lack of F2F task and social interaction, lower levels of trust, different communication styles, and lack of overall process structure) weaken group members' perceptions of performance (Ferreira et al., 2012; Montoya-Weiss et al., 2001; Yilmaz & Peña, 2014). Finally, trust is crucial to group performance because it helps relationships in online and hybrid settings (Garrison et al., 2010; Sarker et al., 2011). The persistence of performance across these themes suggests that conflict plays an important role in the overall performance of online, hybrid, and F2F groups. As such, conflict should be considered an important

factor when considering issues related to group performance in all contexts.

Disciplinary Implications and Future Directions for Communication Research

In our review, we examined literature surrounding conflict and among online and hybrid groups, and we identified what is known and what can still be examined further about four themes: conflict management styles, decision-making, cultural differences, and trust. According to Horwitz et al. (2006), online groups are more flexible and responsive, and they can also lower costs and improve how resources are utilized, which are necessary in a continuously changing global business environment (p. 474). While online groups have many benefits and are becoming increasingly popular, they are also more prone to conflict, so it is important to understand how conflict is managed in online groups. Horwitz et al. (2006) identified five necessary factors for effective online groups: communication technology and communication quality, clearly defined roles and responsibilities, team member trust and relationships, cross-cultural understanding, and organizational commitment. Therefore, it is not surprising that many of the themes addressed in this review align with the factors identified by Horowitz et al. (2006).

Overall, the literature indicates that conflict management is different in online groups, including the increased importance of establishing norms and trust early in group formation (for decision making effectiveness and optimal conflict management). Future research is needed to define more thoroughly what these differences are, why they exist, how the various factors examined as a part of group work influence conflict management in online groups, and how we can use what we know about online groups to improve the quality of online group outcomes.

In addition to our recommendations above, future research should include more disciplinary approaches to the topic, including perspectives from scholars in organizational communication and extensions to other types of goal- or task-oriented groups. Future research could also more clearly develop and apply theory to examinations of conflict in online and hybrid groups. Most research on virtual teams does not use a specific theoretical framework (Schiller & Mandviwalla, 2007), and this trend appears to hold for research on conflict in online and hybrid groups. In addition to group-specific theories such as adaptive structuration theory (DeSanctis & Poole, 1994), media-focused theories such as social information processing theory (Walther, 1992), hyperpersonal theory (Walther, 1996), media synchronicity theory (Dennis, Fuller, & Valacich, 2008), and the dispute-exacerbating model of email (Friedman & Currall, 2003) hold promise for understanding how online and hybrid groups manage conflict. For example, social information processing theory predicts that relationships develop

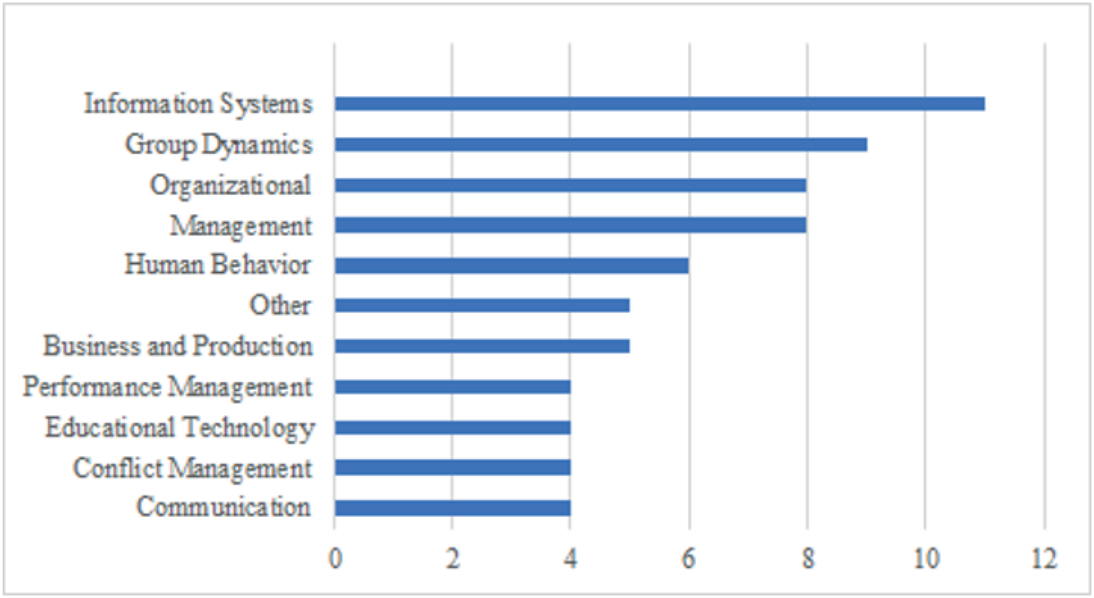

Figure 2. Number of articles by journal topic

more slowly over CMC than F2F (Walther, 1992). Given our identification of trust and cohesion as important to managing conflict, starting hybrid groups F2F and then moving offline might "jump start" the development of trust and cohesion and improve conflict management. In contrast, research using the hyperpersonal perspective has found that impression management in mixed-modality dyads is optimized when groups meet online but quickly move offline (Ramirez & Zhiang, 2007). Researchers could employ these theories to understand whether hybrid groups start online or F2F and when groups move from one to the other could help identify optimal conditions for effective conflict management in groups.

The most prevalent methodological strength is that the studies use real work-groups situated within organizations, as opposed to limiting themselves to a student sample. We think this is a phenomenal benefit to the discipline and to the field since these findings offer real, practical implication for the organization and important findings for the discipline. In line with our other recommendations, we think this focus on using real work-groups should, without a doubt, continue. We imagine that future research would be well-situated to replicate this methodological approach and extend it to include workgroups from different organizations and to compare findings across different types of online groups. Perhaps as a result of using real work-groups, we found through our review that many of the studies used in this analysis lacked replication. As such, future replication studies will also help to confirm the findings of these studies, perhaps in additional contexts and in additional types of online groups.

Further, we found that research on conflict in online groups primarily exists outside of journals focused on communication and conflict management. The 68 articles included in this review came from 49 journals (or other publications) with 11 topics (see Figure 2).

We believe more interdisciplinary approaches to these topics warrant further investigation. For example, perspectives from scholars in communication, conflict management, mediated communication, psychology, and sociology may offer additional insights into conflict in online groups. Finally, literature on online groups drastically declined (see Figure 3) ssince its peak from 2008–2012. Because online groups have become the norm in organizational settings, we believe this warrants additional research on online groups, specifically as it applies to organizational communication. People are likely more comfortable with technology and CMC now than they were in 2012; however, conflict still occurs, and this remains understudied.

Conclusion

As our definitional chart illustrates, most groups are hybrid groups, therefore, it makes sense that there is overlap in

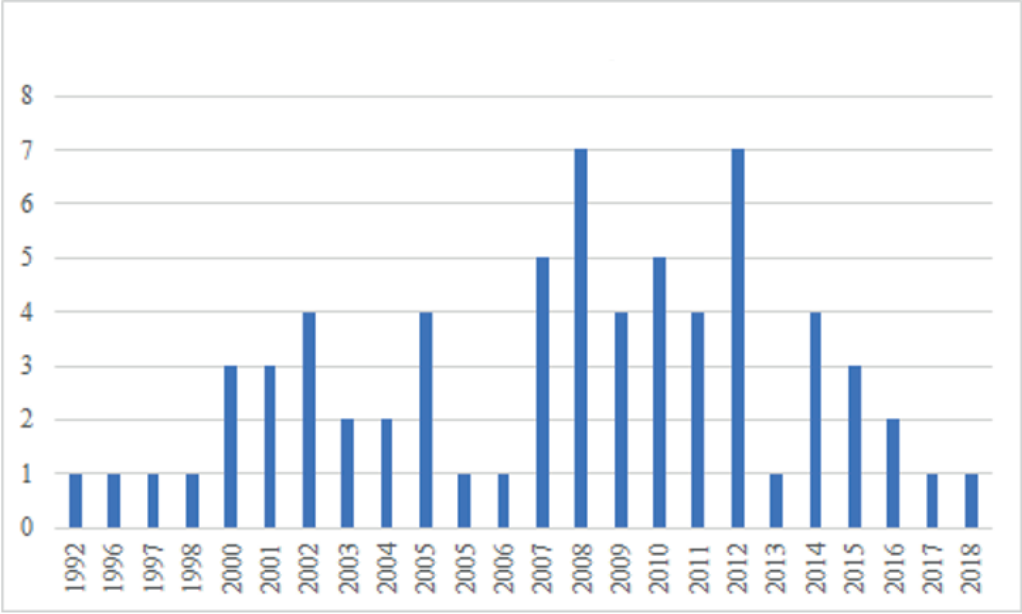

Figure 3. Articles published by year

much of the literature on F2F, online, and hybrid groups. While the dynamics of conflict are similar in F2F, online, and hybrid groups, the literature demonstrates that the type of group determines how prevalent each dynamic is. We have also shown that conflict literature, in general, focuses heavily on group performance as an outcome variable across our four themes, which illustrates the importance of understanding how conflict works in hybrid groups. In addition to offering an extended review on the topic, other disciplines could also benefit from further exploration of the patterns and areas for future research. Organizations could also use this review to better understand the qualities of productive and effective online or hybrid groups. Further, the review provides important implications and applications for many disciplines, given the vast array of scholars who publish on the topic (including scholars in organizational, interpersonal, intercultural, group, and technology communication, as well as scholars in business administration, management, leadership, human resources, conflict management and resolution, distance education, and social psychology). Because online and hybrid work groups have become a prominent societal construct in modern organizations, it is essential that we create further understanding about conflict among these groups in communication research.

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Appendix. Reviewed articles (back to text)

Author(s)	Year	Publication	Theory
Ayoko & Callan	2010	Journal of Management	Transformational and Emotional Leadership Framework
Ayoko et al.	2012	European Management Journal	Affective events theory, Emotional regulation theory and theories of workplace conflict
Baruch & Lin	2007	Technological Forecasting and Social Change	Coopetition theory
Bierly et al.	2009	Journal of Product Innovation Management	N/A
Bodtker & Jameson	2001	International Journal of Conflict Management	Galtung's (1996) triadic theory of conflict transformation
Branson et al.	2012	American Journal of Business	N/A
Bresnahan	2008	Dissertation - University of Southern California	Attachment theory
Chang & Lee	2013	British Journal of Educational Technology	Transformational Leadership
Chen & Chang	2005	International Journal of Organizational Analysis	N/A
Chiravuri et al.	2011	Journal of Management Information Systems	N/A
Correia	2008	British Journal of Educational Technology	N/A
Cramton & Orvis	2003	Virtual teams that work: Creating conditions for virtual teams effectiveness	Social Network Theory, Social Impact Theory
Ezz	2015	Dissertation - University of Maryland University College	Media richness, Swift trust theory
Ferreira et al.	2012	International Journal of Production Economics	N/A
Furumo	2009	The Journal of Computer Information Systems	N/A
Garrison et al.	2010	Database for Advances in Information Systems	Self-categorization theory
Germain	2011	Performance Improvement Quarterly	N/A
Gilson et al.	2015	Journal of Management	N/A

Grosse	2002	Business Communication Quarterly	N/A
Hinds & Bailey	2003	Organization Science	Social presence theory
Hinds & Mortensen	2005	Organization Science	N/A
Hollingshead & Contractor	2002	The Handbook of New Media	N/A
Horwitz et al.	2006	Journal of European Industrial Training	N/A
Jarvenpaa et al.	1998	Journal of Management Information Systems	Swift theory of trust
Jarvenpaa et al.	2004	Information Systems Research	N/A
Jehn	1997	Administrative Science Quarterly	N/A
Jehn et al.	2008	Group Decision and Negotiation	Theory of collective efficacy
Lee, Panteli, Bülow, & Hsu	2018	Information Systems Journal	Adaptation theory
Lin et al.	2010	Computers in Human Behavior	Coopetition theory
Lira et al.	2007	Computers in Human Behavior	Contingency approach
Malhorta et al.	2007	Academy of Management Perspectives	N/A
Martinez-Moreno et al.	2012	Group Dynamics: Theory, Research, and Practice	Social presence theory
Martínez-Moreno et al.	2009	International Journal of Conflict Management	Cues-Filtered Out Perspective, Social Information Processing, Adaptive Structuration Theory
Martínez-Moreno et al.	2015	Group Decision and Negotiation	N/A
Maznevski & Chudoba	2000	Organization Science	Adaptive Structuration Theory
Meluch & Walter	2012	Ohio Communication Journal	N/A
Meyer et al.	2016	South African Journal of Industrial Engineering	N/A
Mokline	2017	Human Systems Management	Social Presence

Montoya-Weiss et al.	2001	Academy of Management Journal	Small group and information systems theory
Mortensen & Hinds	2001	International Journal of Conflict Management	N/A
Msanjila & Afsarmanesh	2008	International Journal of Production Research	N/A
O'Neill et al.	2016	Group Decision and Negotiation	Media synchronicity theory
Ocker & Morand	2002	e-Service Journal	Rogers' Interactive Model of Communication Process
Olaniran	2010	International Journal of Conflict Management	N/A
Pangil & Can	2014	Journal of Knowledge Management	N/A
Paul & Ray	2010	2010 43rd Hawaii International Conference on System Sciences	N/A
Paul et al.	2004	Journal of Management Information Systems	Hofstede's cultural dimensions
Pazos	2012	Team Performance Management; Bradford	N/A
Postmes & Lea	2000	Ergonomics	N/A
Sarker et al.	2011	Journal of Management Information Systems	Social network approach
Serce et al.	2011	Computers in Human Behavior	N/A
Sessa	1996	The Journal of Applied Behavioral Science; Arlington	Conflict theory (Sessa, 1994)
Shin	2005	Organizational Dynamics	N/A
Sivunen & Valo	2006	IEEE Transactions on Professional Communication	N/A
Staples & Webster	2007	Small Group Research	Social cognitive theory
Stark et al.	2014	Team Performance Management; Bradford	Rational theories of media choice and media fit theory
Stewart & Barrick	2000	Academy of Management Journal	N/A

Thomas	1992	Handbook of Industrial and Organizational Psychology	N/A
Tjosvold et al.	2005	Human Relations; Thousand Oaks	N/A
Wakefield et al.	2008	Information Systems Research	Theory of behavioral complexity in leadership
Walther	2009	Journal of Applied Communication Research	Hyperpersonal
Workman	2007	Journal of the American Society for Information Science and Technology	Social Identity Theory
Xiaojing et al.	2008	Performance Improvement Quarterly	N/A
Yilmaz & Peña	2014	Communication Research	Social information processing theory
Yong et al.	2014	Small Group Research	N/A
Yu & Kuo	2012	Journal of Educational Technology & Society	N/A
Zellmer-Bruhn et al.	2008	Organizational Behavior and Human Decision Processes	Information-processing/decision-making framework
Zornoza et al.	2002	Small Group Research	N/A

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Corresponding author
Jessica Kahlow
University of Wisconsin-Milwaukee (USA)
Email: jkahlow@uwm.edu

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